A Shot in the Dark

Wolf Richter
How to Study

• Go through all the slides
• Create condensed notes
• One section in notes per slide set/topic
• Study your few sheets
• Read more on unclear topics
• You know the feeling of understanding
How to Study

• Go through all the slides
• Create condensed notes
  One section per notes per slide set

Pretend cheat sheets allowed

• Read more on unclear topics
• You know the feeling of understanding
Remember, knowing the name of something is definitely not the same as knowing something.

This applies to tests...
Never Repeat a Mistake

- Know how to do previous problems
- Take a practice exam and focus on errors
- Practice problems you mess up
- Review any errors on midterm, HWs
Test Taking Tips

- Find all the important words in the course
- Learn their meanings
- Memorize all the units you need
Test Taking Tips

- Find all the important words in the course
- Learn their meanings
- Memorize all the units you need

(1) Boosts Confidence
(2) Saves Time
If you never panic,
you'll do better than most in all life situations.
Let's Not Waste Time

• Units: If unsure, ask for clarification
• Power of 10 vs power of 2
• Stored Data: usually powers of 2
• Network Bandwidth: often powers of 10
  • And expressed as bits vs bytes (x8)
<table>
<thead>
<tr>
<th>Units</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Byte</td>
<td>8 bits</td>
</tr>
<tr>
<td>1 KByte</td>
<td>$2^{10}$ bytes</td>
</tr>
<tr>
<td>1 Mbps</td>
<td>$10^6$ bits per second</td>
</tr>
<tr>
<td>1 GHz</td>
<td>$10^9$ Hz</td>
</tr>
<tr>
<td>SI decimal prefixes</td>
<td>IEC binary prefixes</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td><strong>Name</strong> (Symbol)</td>
<td><strong>Value</strong></td>
</tr>
<tr>
<td>kilobyte (kB)</td>
<td>$10^3$</td>
</tr>
<tr>
<td>megabyte (MB)</td>
<td>$10^6$</td>
</tr>
<tr>
<td>gigabyte (GB)</td>
<td>$10^9$</td>
</tr>
<tr>
<td>terabyte (TB)</td>
<td>$10^{12}$</td>
</tr>
<tr>
<td>petabyte (PB)</td>
<td>$10^{15}$</td>
</tr>
<tr>
<td>exabyte (EB)</td>
<td>$10^{18}$</td>
</tr>
<tr>
<td>zettabyte (ZB)</td>
<td>$10^{21}$</td>
</tr>
<tr>
<td>yottabyte (YB)</td>
<td>$10^{24}$</td>
</tr>
</tbody>
</table>

See also: Multiples of bits • Orders of magnitude of data
Comparison of Decimal and Binary Units

Metric storage capacity (log scale)

Percent Less Than Equivalent In Binary units

- Kilobyte: 2.34%
- Megabyte: 4.63%
- Gigabyte: 6.87%
- Terabyte: 9.05%
- Petabyte: 11.18%
- Exabyte: 13.26%
What is a nibble?
How We Make the Exam

- List all topics (since midterm) by lecture
- Pick 1 problem per topic from database
- Create first draft
- Cut down number of problems
  - Kill very difficult ones
  - Murder super long ones
  - Asphyxiate poorly worded ones
- Add in 1-2 review questions
Key Topics Before Midterm

- Layering/Network Stack
- Ethernet/Bridging/Switching/Routing
- DNS/IP/BGP
- Things kind of build on each other...
Topics After Midterm

- Tunnels
- TCP
- Congestion Control
- CDNs
- P2P
- VoIP
- Multimedia
- QoS
- Mobile IP
  - Issue: RPF
- Wireless
- Questioning IP
- Security/Firewalls
  - Also: NAT
Try to be logical.

Once you're lost, not remembering terms and acronyms,

Don't panic.

Think through with a logical engineering mind and try to think what you would do/how you would design.
Final Exam

- Where: Scaife Hall, 125
- Day: Tuesday, December 20, 2011
- Time: 8:30 AM – 11:30 AM

Good luck!
GitHub:

Git it, got it, good.

git clone git://github.com/theonewolf/15-441-Recitation-Sessions.git